Mission Shakti - Anti-Satellite Missile Test

Why in news?

Indian PM announced that India had carried out a successful anti-satellite missile test (ASAT), Mission Shakti.

What is an anti-satellite missile test?

- ASAT is the technological capability to hit and destroy satellites in space through missiles launched from the ground.
- The first anti-satellite test (ASAT) was carried out by the US military way back in 1959. The then Soviet Union followed a year later.
- Thereafter, the two countries carried out a series of such tests up till early 1980s.
- After that there was a lull, broken only by the Chinese test in 2007.
- India became only the fourth country to carry out an anti-satellite missile test.
- Other countries which could have the capability, like Israel, have not shown an intention to test.

What is the objective of ASATs?

- The technology is aimed at destroying, if necessary, satellites owned by enemy countries.
- With large number of crucial applications being satellite-based, satellites are extremely critical infrastructure of any country these days.
- Some of them include navigation systems, communication networks, banking systems, weather forecasting, disaster management, and military applications.
- Destroying a satellite would render these applications useless.
- It can thus cripple enemy infrastructure without causing any threat to human lives.
- As per the norms, the test, however, can be carried out only on one's own satellite.

What is Mission Shakti?

- There are a large number of satellites currently in space, many of which have outlived their utility and orbiting aimlessly.

- One such satellite was chosen for India's present test.
- A missile was launched from the Dr A P J Abdul Kalam Island launch complex near Balasore in Odisha.
- It struck a predetermined target which was a redundant Indian satellite that was orbiting at a distance of 300 km from the Earth’s surface.
- As per official sources, the satellite that had been knocked out was Microsat R, a micro-satellite launched by ISRO in January, 2019.

What is the significance?

- The mission has given India a unique and critical strategic capability that only three other countries in the world currently possess.
- India has shown that it is capable of bringing down a satellite, and disrupting communication.
- Much like in the case of nuclear weapons, the effectiveness of anti-satellite missiles depends on the deterrence it brings.
- But unlike the 1998 nuclear test of India, the anti-satellite missile test is not prohibited by any international law or treaty.
- [Click here to know more on the treaty and the connection with space debris]

What are the other ways of destroying satellites?

- In the last few years, countries have explored alternative options of making enemy satellites dysfunctional.
- These do not involve direct destruction of the target or creation of the debris.
- E.g. technologies have been developed to jam the communication from the satellites by interfering with its radio signals
- Another option is sending satellites that just approach a target close enough to deviate it from its selected orbit, without destroying it.
- China, Japan, Russia and the European Space Agency are learnt to be working on developing these ‘close proximity’ anti-satellite technologies.
- There is also a possibility of using of ground-based lasers to ‘dazzle’ the sensors of the satellites.
- This could make them at least “partially blind” so that they are unable to work efficiently.
- But none of these technologies is mature enough to be deployed or tested.

Source: Indian Express, Business Standard



SHANKAR
IAS PARLIAMENT
Information is Empowering